

L Number	Hits	Search Text	DB	Time stamp
-	2	("5613117").PN.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:17
-	170	analyz\$6 near5 interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:33
-	689	analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:29
-	170	(analyz\$6 near5 interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3)) and 717/\$.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:31
-	17	((analyz\$6 near5 interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3)) and 717/\$.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:31
-	882	templat\$1 near7 (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:36
-	0	(templat\$1 near7 (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3) and 717/\$.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:37
-	14	(templat\$1 near7 (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:36
-	2803	templat\$2 same (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:39
-	83	(templat\$2 same (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:40
-	6	((templat\$2 same (append\$3 or modif\$3 or edit\$3 or chang\$3) and transla\$3) and (analyz\$6 same interpret\$3 and (eliminat\$3 or replac\$3 or remov\$ or delet\$3) same (sequence\$1 or code or block or template or instruction\$1) and translat\$3)) and 717/\$.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/06 12:40

These products fail to create any balance between static scanning and run-time monitoring. SurfinShield employs run-time monitoring, SurfinGate uses static scanning, and Cage utilizes emulated run-time monitoring. Since static scanning is usually done on the server and run-time monitoring on the client, this imbalance also causes an imbalance between the **load** of the server and the client. To distribute the **load** between the client and the server evenly, the present inventor has determined that a combination of static scanning and run-time monitoring is needed.

Brief Summary Text - BSTX (17):

This disclosure is directed to an applet scanner that runs e.g. as an HTTP proxy server and does not require any client-side modification. The scanner combines static scanning and run-time monitoring and does not cause a heavy **load** on the server. It also does not introduce significant

Details Text Image HTML KWIC

U	1	Document	Current	Page	Title
1	<input type="checkbox"/>	US 6272641 713/201	8		Computer network malicious code scanner method and
2	<input type="checkbox"/>	US 6092202 713/201	18		Method and system for se
3	<input type="checkbox"/>	US 6009177 713/191	53		Enhanced cryptographic s
4	<input type="checkbox"/>	US 5983348 713/200	9		Computer network malici
5	<input type="checkbox"/>	US 5903882 705/44	42		Reliance server for electr

Details Text Image HTML

United States Patent

Ji



US005983348A

(31) Patent Number: 5,983,348
(45) Date of Patent: Nov. 9, 1999

(54) COMPUTER NETWORK MALICIOUS CODE SCANNER

(75) Inventor: Shuang Ji, Santa Clara, Calif.

(73) Assignee: Trend Micro Incorporated, Cupertino, Calif.

(21) Appl. No.: 08/926,618

(22) Filed: Sep. 10, 1997

(51) Int. Cl.⁷ G06F 13/00

(52) U.S. Cl. 713/200, 714/38

(59) Field of Search 713/200, 714/38, 715/200, 715/201, 715/202, 715/203, 715/204, 715/205, 715/206, 715/207, 715/208, 715/209, 715/210, 715/211, 715/212, 715/213, 715/214, 715/215, 715/216, 715/217, 715/218, 715/219, 715/220, 715/221, 715/222, 715/223, 715/224, 715/225, 715/226, 715/227, 715/228, 715/229, 715/230, 715/231, 715/232, 715/233, 715/234, 715/235, 715/236, 715/237, 715/238, 715/239, 715/240, 715/241, 715/242, 715/243, 715/244, 715/245, 715/246, 715/247, 715/248, 715/249, 715/250, 715/251, 715/252, 715/253, 715/254, 715/255, 715/256, 715/257, 715/258, 715/259, 715/260, 715/261, 715/262, 715/263, 715/264, 715/265, 715/266, 715/267, 715/268, 715/269, 715/270, 715/271, 715/272, 715/273, 715/274, 715/275, 715/276, 715/277, 715/278, 715/279, 715/280, 715/281, 715/282, 715/283, 715/284, 715/285, 715/286, 715/287, 715/288, 715/289, 715/290, 715/291, 715/292, 715/293, 715/294, 715/295, 715/296, 715/297, 715/298, 715/299, 715/300, 715/301, 715/302, 715/303, 715/304, 715/305, 715/306, 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load on the server. It also does not introduce significant performance overhead during the execution of applets. The scanner provides configurable security policy functionality, and can be deployed as a client-side solution with appropriate modifications.

Detailed Description Text - DETX (29):

The digital signer component 58 digitally signs the applet (now JAR™), with a digital signature unique to the particular scanner 26, for authentication in the local domain. The applet JAR™ is then transferred to the client machine 14 for execution. Thus the only signature that a client needs to recognize is the digital signature of the signer component 58 in the scanner 26. This pre-verification simplifies system administration and reduces risks to unsophisticated users who might otherwise accidentally accept applets with unauthorized signatures.

Details Text Image HTML KWIC

U	1	Document	Current	Page	Title
1	<input type="checkbox"/>	US 6272641 713/201	8		Computer network malicious code scanner method and
2	<input type="checkbox"/>	US 6092202 713/201	18		Method and system for se
3	<input type="checkbox"/>	US 6009177 713/191	53		Enhanced cryptographic s
4	<input type="checkbox"/>	US 5983348 713/200	9		Computer network malicious code scanner
5	<input type="checkbox"/>	US 5903882 705/44	42		Reliance server for elect
	<input type="checkbox"/>	US 5970000 713/175	50		Enhanced cryptographic s

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US05983348A

United States Patent [19] Patent Number: 5,983,348
J1 Date of Patent: Nov. 9, 1999

[54] COMPUTER NETWORK MALICIOUS CODE SCANNER 5,960,232 2/995 Freeman et al. 3/9/98
5,622,600 4/1997 Li et al. 5/9/97
5,870,829 9/1998 Cohen et al. 3/9/2003

[75] Inventor: Shuang Ji, Santa Clara, Calif.

[73] Assignee: Trend Micro Incorporated, Cupertino, Calif.

Primary Examiner—Norman Michael Wright
Attorney, Agent, or Firm—Snyder, Merrill MacPherson, Franklin & Friel LLP; Norman R. Khivans

[21] Appl. No.: 08/926,619

[22] Filed: Sep. 10, 1997

[31] Int. Cl. G06F 13/00

[32] U.S. Cl. 713/200, 714/38

[59] Field of Search 395/180, 187, 211, 395/183.01, 183.14, 183.15, 210.54, 210.55, 200.32, 360/3, 4, 23, 25, 713/200, 261, 200, 714/38, 37

[56] References Cited

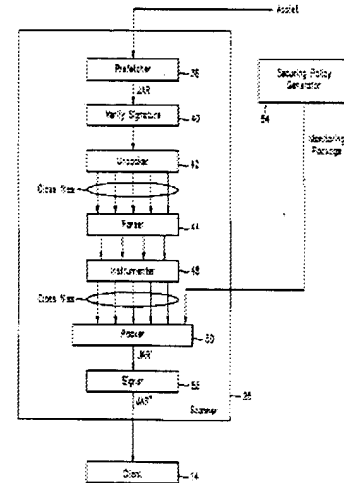
U.S. PATENT DOCUMENTS

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ABSTRACT

A network scanner for security checking of application programs (e.g. Java applets or Active X controls) received over the Internet or an Intranet has both static (pre-run time) and dynamic (run time) scanning. Static scanning at the HTTP proxy server identifies suspicious instructions and retransmits them e.g. a pre-and post filter instruction sequence or otherwise. The instrumented applet is then transferred to the client (web browser) together with security monitoring code. During run time at the client, the instrumented instructions are closely monitored for security policy violations, and execution of an instruction is prevented in the event of such a violation.

24 Claims, 2 Drawing Sheets



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L5: (9) (trust\$3 or (un adj1 trust\$3)) same (pre adj1 verif\$7)

L6: (11) (trust\$3 or (un adj1 trust\$3)) and (pre adj1 verif\$7)and load\$3

L7: (12) (trust\$3 or (un adj1 trust\$3)) and (pre adj1 verif\$7)and link\$3

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	U	1	Document	Issue Da	Page	Title	Current	Current X	R	Inventor	S	C	P	2
1	<input type="checkbox"/>	<input type="checkbox"/>	US 6321333	20011120	13	Efficient digital certificate processing in a data processing s	713/158	713/168		Murray, Eric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6272641	20010807	8	Computer network malicious code scanner method and apparatus	713/201	380/252;		Ji, Shuang	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6092202	20000718	18	Method and system for secure transactions in a computer syste	713/201	705/64;		Veil, Leonard Scott et al.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6009177	19991228	53	Enhanced cryptographic system and method with key escrow feat	713/191	380/30;		Sudia, Frank Wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	US 5983348	19991109	9	Computer network malicious code scanner	713/200	714/38		Ji, Shuang	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	US 5903882	19990511	42	Reliance server for electronic transaction system	705/44	380/30;		Asay, Alan et al.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	US 5872849	19990216	52	Enhanced cryptographic system and method with key escrow feat	713/175	380/286		Sudia, Frank Wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	US 5857022	19990105	53	Enhanced cryptographic system and method with key escrow feat	713/173	380/277;		Sudia, Frank Wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	US 5850451	19981215	48	Enhanced cryptographic system and method with key escrow feat	380/286	370/394;		Sudia, Frank Wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	US 5841865	19981124	54	Enhanced cryptographic system	380/286	380/277;		Sudia, Frank Wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Detailed Description Text - DETX (58):

Pre-verification of digital certificates of transacting parties saves verification processing time especially in a high volume, high frequency electronic transactions environment. **Pre-verified** digital certificates of transacting parties can be stored for future accelerated use (without having to repeat the verification process). Instead of a certificate cache in a conventional system which can be compromised by adding a false certificate, a **trusted** certificate cache is provided in the system in accordance with the present invention. The **trusted** certificate cache is typically resident in a RAM. The **trusted** certificate cache in the secure computing environment holds the **pre-verified** digital certificates which, by reason of the interface, cannot be compromised. Once a digital certificate has been verified, an API command can be used to store the certificate in the **trusted** certificate cache.

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U	1	Document	Current	Page	Title
1	<input type="checkbox"/>	US 6321333 713/156	13		Efficient digital certificate processing in a data processing system
2	<input type="checkbox"/>	US 6092202 713/201	18		Method and system for secure transactions in a computer system
3	<input type="checkbox"/>	US 6009177 713/191	53		Enhanced cryptographic and method with key escrow
4	<input type="checkbox"/>	US 5872849 713/175	52		Enhanced cryptographic and method with key escrow
5	<input type="checkbox"/>	US 5857022 713/173	53		Enhanced cryptographic and method with key escrow
6	<input type="checkbox"/>	US 5854454 713/166	46		Enhanced cryptographic and method with key escrow

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United States Patent [57]
Vell et al.

[11] Patent Number: 6,092,202
[45] Date of Patent: Jul. 18, 2000

[54] METHOD AND SYSTEM FOR SECURE TRANSACTIONS IN A COMPUTER SYSTEM

[75] Inventors: Leonard Scott Vell, Campbell; Gary Paul Ward, Sunnyvale; Richard Alan Wain, Los Altos Hills; Eric Alan Murray, Los Gatos, all of Calif.

[73] Assignee: N-Able Technology, Inc., Cupertino, Calif.

[21] Appl. No.: 09/044,978

[22] Filed: May 22, 1999

[51] Int. Cl. 7: H04L 9/00, G06F 11/00

[52] U.S. Cl.: 713/201; 713/153; 705/64

[56] Field of Search: 713/200, 201, 713/150, 151, 152, 153, 154; 708/135, 708/44, 64; 980/4; 99/220, 227, 228

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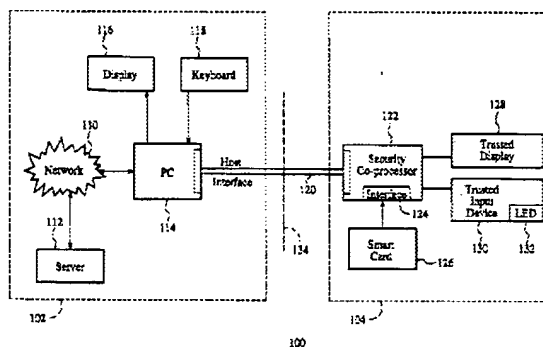
4,319,079	3/4/80	Best	178/22,29
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Primary Examiner—Robert W. Brunsell, Jr.
Assistant Examiner—Christopher Alan Kervik
Attorney, Agent, or Firm—Grayer Law Group, LLP

ABSTRACT

A method and system for secure transactions. The method and system comprise a security co-processor and an interface for interfacing the security co-processor to a host computer system. The method and system wherein secure transaction processing is performed locally in the security co-processor and end-to-end transaction processing is performed in the host computer system. The method and system further include means for providing trusted input coupled to the security co-processor. In addition, the method and system include a second interface coupled to the security co-processor for receiving sensitive data from a smart card, and a trusted display coupled to the security co-processor for providing use transaction information. One advantage of the method and system is in accordance with the present invention is that transactions are processed from unverified sources and, in addition, participation is proven so that transactions cannot be repudiated. Another advantage is that the method and system maintain compatibility with smart cards technology. Yet another advantage is that, because the security co-processor has functionality, smart cards require built-in functionality only for storing sensitive data including account number and private-key and for providing digital signatures to prove participation. Moreover, smart cards can carry sensitive data to be recognized by the method and system for an even more reliable proof of participation and card-holder verification. With less built-in functionality, the smart cards are less complex and less expensive. Finally, the method and system are easily implemented with current technology, and the overall cost of the system is reduced.

16 Claims, 8 Drawing Sheets



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